National Institute of Environmental Health Sciences

The linkages of anthropogenic emissions and meteorology in the rapid increase of particulate matter at a foothill city in the Arawali range of India

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Abstract:

The city of Udaipur (24.58°N, 73.68°E) in the province of Rajasthan in the Western part of India has a special significance as it is surrounded by the Arawali mountain ranges on one side and desert on the other side. It is located around the foothills of the rocky Arawali range. It is on the world map due to its tourist attraction. The changing pattern in particulate matter (PM2.5 and PM10) during the past three years indicates an alarming increasing trend, posing a threat to its environment & tourism sector which regulates its economy to a period during the monsoon and distribution of particulate matter is found to be governed by the meteorology and changes the trend. The level of PM10, which was already above the threshold level in 2010, further increased in 2012. The trend is found to be rapid during the months of October & November where an increase by 37% is observed in 3 years. The level of PM2.5, which is the most hazardous for respiratory system diseases, has now started to cross the ambient air quality standards set by the World Health Organization. The impact is significant during winter when the inversion layer is down due to colder temperature and foreign tourists are a peak giving rise an increased morbidity rate. The linkages of local weather with an anthropogenically induced trend and long range transport of pollutants have been outlined.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Precipitation, Temperature

Air Pollution: Interaction with Temperature, Particulate Matter

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Other Geographical Feature

Other Geographical Feature : foothills

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: India

Health Impact:

specification of health effect or disease related to climate change exposure

Respiratory Effect

Respiratory Effect: Other Respiratory Effect

Respiratory Condition (other) : repsiratory disease morbidity

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified